

Claim 1

A concentrating solar collector for hot water heating comprising;

    A rectangular shaped frame having a major dimension and a width, including a bottom surface, vertical end panels and side panels of pre-determined height,

    A plurality of planar vertical supports for a parabolic reflector surface,

    An odd numbered plurality of reflector surfaces,

    An odd numbered plurality of heat absorbing conduits, wherein:

        said frame is made from a non-conducting substrate having a plurality of inner and outer sheets with at least one corrugated intermediate sheet.

        said frame substrate is shaped to include a bottom area, folded primary end panels and folded primary side panels equal to the height of the frame and secondary co-extensive side panels,

        said end panels each having a plurality of apertures spaced transversely a distance equal to the distance between focal points of adjacent parabolic curves,

        said secondary side panels folded inside of the primary side panel to define at least one folded projection with slot cutouts for containment of said planer vertical supports,

        said planar supports including an odd numbered plurality of adjacent parabolic shaped cutouts along the top margin,

a plurality of reflector surfaces having a pre-selected length and a total reflective width substantially equal to the sum of adjacent parabolic surfaces,

each of said apertures in the end panels centered along a focal line below the upper margins of said end panels, and passing through said end panels for serial connection to a coacting absorber conduit,

the first and last of said serially connected absorber conduits connected to inlet and outlet fluid piping respectively.

Claim 2 In a collector of claim 1 wherein said collector frame includes a corrugated paperboard blank with tabs extending from end panels, score lines for folding end and side primary panels, and score lines for folding the secondary panels inside the frame for superposed attachment to the primary side panels.

Claim 3 The collector of claim 2 wherein said inside folded secondary panel has a plurality of score lines in the direction of the major frame direction to form at least one inside folded projection.

Claim 4 The collector of claim 3 wherein secondary side panels have vertical slots extending above one score line and below another of said score lines.

Claim 5 The collector of claim 4 wherein said slots have a width substantially equal to the width of a reflector surface support.

Claim 6 The collector of claim 1 wherein each support includes an odd numbered plurality of parabolic shaped cutouts along the upper margin.

Claim 7 The collector of claim 1 wherein the supports include inside corrugations oriented vertically and perpendicular to the plane of the bottom panel.

Claim 8 The collector of claim 1 wherein the reflector surface includes an underlying flexible non-conductive substrate and a superposed reflective sheet bonded to the upper surface thereof.

Claim 9 The collector of claim 6 wherein the apertures in the end panels equal the number of parabolic cutouts in another collector installed end to end relationship with said collector.

Claim 10 The collector of claim 1 wherein said heat absorbing conduit extends beyond the frame and coacts with a corresponding reflective surface in an adjacent collector.

Claim 11 The collector of claim 10 wherein parallel extended conduits of adjacent parabolic reflectors are connected externally of the collector frame for serial fluid flow.